

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property  
Organization  
International Bureau**



**(43) International Publication Date**  
**31 December 2003 (31.12.2003)**

**PCT**

**(10) International Publication Number**  
**WO 2004/000217 A2**

(51) **International Patent Classification<sup>7</sup>:** **A61K**

(21) **International Application Number:** **PCT/US2003/019383**

(22) **International Filing Date:** **20 June 2003 (20.06.2003)**

(25) **Filing Language:** **English**

(26) **Publication Language:** **English**

(30) **Priority Data:**  
60/390,304 **20 June 2002 (20.06.2002)** **US**

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**(81) Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

**(84) Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

*[Continued on next page]*

(54) Title: VACCINES FOR SUPPRESSING IGE-MEDIATED ALLERGIC DISEASE AND METHODS FOR USING THE SAME

**mlgE-TT construct: Nucleotide and amino acid sequences**  
(SEQ ID NOS. 5 & 6)

atggactggagctggatctctctcttggcagcagccagcgagtcacctcccatggg  
M D W T W I L F L V A A A T R V H S | H G  
Leader sequence

ctggctggccggtctcgggcaggtccacagagggcccccggataggggtgctctggcactccggga  
L A G G S A Q S Q R A P D P V L C H S G

cagcagcagggaactgcgcagayacagcaggaagctctgtgccccacccccgcctgcactgt  
Q Q Q G L P R A A G G S V P H P R C H C

G A G R A D W P C P P E L D V C V E E A

gaggcgagggcgccgllgagctggagcgcgcctctgcattctggcgcgacctctctctgctc  
E G E A P W T W T G L C I F A A L F L L

SVSYSAALTLMLMVQRFLSAT

cgccgagggaggccccagacctctctgactacaccuargtctctccagccccagccaga  
R Q G R P Q T S L D Y T N V L Q P H A J R

gaaagaaagagctgttpttrggtracagatccaaattatttaagactgattcttgataaagat  
E K R A V V G Y D P N Y L R T D S D K D  
Protease cleavage signal → TP

agatctttacaaaccatggtaaaactgtttaacagaaatlaagagagaaaaagayctgtc  
R F L Q T M V K L F N R I K K E K R A V  
Protease cleavage

gttggcctttaaataattttacogctagcttttggcttgagggctctctaaagatctgctagt  
V G F N N F T V S F W L R V P K V S A S

cattagacatcatcatcatcattag  
H L E H H H H H H -

670

**(57) Abstract:** Nucleic acid molecules that encode a protein comprising at least one epitope of membrane IgE free of epitopes present on the serum IgE, including proteins that further comprise non-IgE T cell helper epitope are disclosed. Vaccines, vectors and host cells that comprise such nucleic acid molecules are disclosed. Isolated proteins, including haptenized proteins, comprising at least one epitope of membrane IgE free of epitopes present on the serum IgE, including proteins that further comprise non-IgE T cell helper epitope are disclosed. Vaccines that comprise and methods of making such proteins and antibodies that specifically bind to such proteins are disclosed. Killed or inactivated cells or particles, including haptenized killed or inactivated cells or particles, that comprise a protein comprising at least one epitope of membrane IgE free of epitopes present on the serum IgE, including proteins that further comprise non-IgE T cell helper epitope are disclosed. Vaccines that comprise such killed or inactivated cells or particles are disclosed. Methods of treating and preventing IgE mediated allergic disease or condition are disclosed.

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